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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/524,309	02/07/2005	Kim Lui So	SO-2	6440
7590 Loren G Helmreich Browning Bushman Suite 1800 5718 Westheimer Houston, TX 77057				
06/26/2008				
EXAMINER				
PRICE, CARL D				
ART UNIT		PAPER NUMBER		
3749				
MAIL DATE		DELIVERY MODE		
06/26/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/524,309

**Applicant(s)**

SO, KIM LUI

**Examiner**

Carl D. Price

**Art Unit**

3749

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03/21/2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10, 12, 14, 16-26 and 40-57 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10, 12, 14, 16-26 and 40-57 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB08)  
Paper No(s)/Mail Date 05/13/2005
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### Response to Arguments

Applicant's arguments with respect to claims 1-10, 12, 14, 16-26 and 40-57 have been considered but are moot in view of the new ground(s) of rejection.

Applicant has amended the claims to be of a scope not previously considered. Consistent with applicant's argument that the prior art relied on in the previous office action fail to show, disclose and/or teach certain aspects of applicant's invention now recited in the claims filed on 03/21/2008 applicant has amended the claims to include at least the following:

#### 1. (Currently Amended)

A self-cleaning **kitchen** exhaust system, comprising: a first filter in a path for an air flow; a first spray outlet for providing a first spray into the air flow before the first filter to enable the first spray to be drawn along the path onto a first surface of the first filter; and a second filter in the path for the air flow **downstream from the first filter**; wherein the first spray has droplets sized to combine with droplets of a contaminant to form combined droplets in the air flow before the first filter to assist the combined droplets being captured by the first filter; **and a plate mounted below the first filter for collection of the first spray such that the self-cleaning kitchen exhaust system is operative when cooking is taking place below the plate.**

#### 17. (Currently Amended)

A self-cleaning **kitchen** exhaust system including a first filter for filtering contaminants from an air flow along an air flow path, a first spray outlet for providing a fine, first spray of a cleaning solution into the air flow before the first filter to enable the fine, first spray to be drawn into the first filter by the air flow, **wherein the fine, first spray has droplets sized to combine with droplets of the contaminant to form combined droplets in the air flow before the first filter to assist the combined droplets being captured by the first filter,** and a plate **mounted below the first filter for collection of the fine, first spray such that the exhaust system is operable when cooking is taking place below the first plate.**

#### 19. (Currently Amended)

A method of removing at least one contaminant in a **kitchen** exhaust system, comprising: providing a first spray into an air flow before a first filter, the first filter being mounted in a path of the air flow to enable the first spray to be drawn along the path onto the first filter; the first spray being able to

combine with droplets of the contaminant in the air flow before the first filter; the first spray being able to coat the first filter to assist the first filter in capturing at least one droplet of the contaminant in the air; **and a plate mounted below the first filter for collection of the first spray such that the self-cleaning kitchen exhaust system is operable when cooking is taking place below the first plate.**

**46. (New)**

A self-cleaning kitchen exhaust system, comprising: a first filter in a path for an air flow; a first spray outlet for providing a first spray into the air flow before the first filter to enable the first spray to be drawn toward the first filter; and a second filter in the path for the air flow downstream from the first filter; wherein the first spray has droplets sized to combine with a contaminant to form combined droplets in the air flow before the first filter, such that the combined droplets are captured by the first filter; a plate mounted below the first filter for collection of the first spray such that the self-cleaning kitchen exhaust system is operative when cooking is taking place below the plate; and a drain for draining fluid collected on the plate.

**51. (New)**

A method of removing at least one contaminant in a kitchen exhaust system, comprising: providing a first spray into an air flow before a first filter, mounting the first filter along a path of the air flow such that the first spray is drawn along the path of the air flow toward the first filter while combining with a contaminant to form combined droplets in the air flow before the first filter; mounting a plate below the first filter for collection of the first spray such that the self-cleaning kitchen exhaust system is operable when cooking is taking place below the first plate; and draining fluid collected on the plate.

**55. (New)**

A self-cleaning kitchen exhaust system, comprising a first filter in a path for an air flow and inclined with respect to the path for the air flow; a first spray outlet for providing a first spray into the air flow before the first filter to enable the first spray to be drawn toward the first filter; a second spray outlet located in said air flow path after said first filter for providing a second cleaning spray onto a rear surface of said first filter; and a second filter in the path for the air flow downstream from the first filter; wherein the first spray has droplets sized to combine with a contaminant to form combined droplets in the air flow before the first filter, such that the combined droplets are captured by the first filter; and a plate mounted below the first filter for collection of the first spray such that the self-cleaning kitchen exhaust system is operative when cooking is taking place below the plate.

The following examiner's action is now made in response to applicant's argument that the prior art of record fails to show and/or teach a self-cleaning kitchen exhaust hood as now set forth in applicant's amended and newly presented claims.

**Claim Rejections - 35 USC § 112**

**Claim 16** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 16 depend from cancelled claim 15. As such the scope of claim 16 can not be determined. For the purpose of examination it is assumed that claim 15 depend from claim 1.

**Claim Rejections - 35 USC § 102**

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims **1, 2, 4-6, 12, 14, 19-23, 26, 40, 44, 45, 46-55** and **57** are rejected under 35 U.S.C. 102(b) as being anticipated by **US003616744 (Jensen)**.

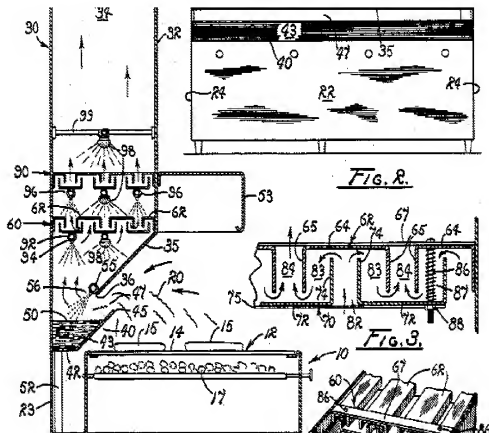
**US003616744 (Jensen)** a continuous self-cleaning kitchen exhaust hood system wherein cooking exhaust air and fumes are drawn (see column 3, line 60) including:

- a first filter (60) in a path for an air flow;
- a first spray outlet (56, 94) for providing a fine (“fogging nozzles”) first spray into the air flow before the first filter which would inherently enable the first spray to be drawn along the path onto a first surface of the first filter;
- a second filter (90) in the path for the air flow;
- at least some of the droplets of the first spray are of a size inherently capable of combining with droplets of a contaminant carried by the air flow, whereby the combined droplets are captured by the first filter (“...some minute particles of the contaminants intimately entrained with the air steam which have become partially saturated with the water vapor from the first-stage fogging nozzles 56”); a second spray outlet (118) located in said air flow path after said first filter for providing a second cleaning spray onto a rear (top) surface of said first filter (106); and
- wherein the first and second filters are inclined (see column 5, lines 1-4);
- a plate mounted (35 or 40) below the first filter for collection of the fine, first spray such that the exhaust system is operable when cooking is taking place below the first plate.

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In regard to claim 5, US003616744 (**Jensen**) includes a top, a front wall (32, 53), a rear wall (23, 30) and side walls (34) extending between the rear wall and the front wall; and a baffle (35) depending from the top and intermediate the front wall and the rear wall.

In regard to claim 6, in US003616744 (**Jensen**) both the filters (60, 90) are mountable to one of the front wall and the rear wall, and the baffle extends between the front wall and the rear wall.



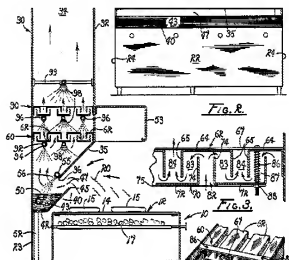
### Claims rejected under 35 U.S.C. 103(a)

Claims 3, 16-18, 24, 42, 43 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 3616744 (**Jensen**) in view of US 3805685 (**Carns**)

US 3616744 (**Jensen**) shows and discloses (see detailed discussion herein above) the invention substantially as set forth in the claims with possible exception to:

- the second outlets providing a course spray.

- the cleaning fluid being that of a cleaning "solution", such as a mixture of water and detergent.



US 3805685 (Carns) teaches, from applicant's same self-cleaning kitchen exhaust hood system field of endeavor, a cleaning fluid is that of a cleaning "solution" including a wetting agent (surfactant), such as a mixture of water and detergent.

PATENTED APR 23 1974

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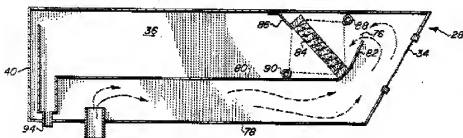


FIG. 4

In regard to claim 3 and 24, since the characteristics of the first and second sprays for a given apparatus would necessarily depend on numerous design concerns such as properties and characteristics of the air flow (e.g. - volume of flow) and entrained contaminant (oily vapor, dust

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particle, etc.), to form the first sprayer to provide a fine spray and a second spray outlet for providing a coarse spray can be viewed as nothing more than merely matters of choice in design absent the showing of any new or unexpected results produced therefrom over the prior art of record.

In regard to claims **16-18, 42, 43** and **56**, for the purpose of providing wetting means to aid in the cleaning process, it would have been obvious to a person having ordinary skill in the art to operate the **US 3616744 (Jensen)** system with a cleaning solution having a ratio of water to wetting agent (degreaser) suitable and appropriate to achieve the intended purpose, in view of the teaching of **US 3805685 (Carns)**.

**Claims rejected under 35 U.S.C. 103(a)**

**Claims 7-10** are rejected under 35 U.S.C. 103(a) as being unpatentable over **US 3616744 (Jensen)** in view of **EP 0 029 807**, **US 5359990 (Hsu)** or **US 3805685 (Carns)**.

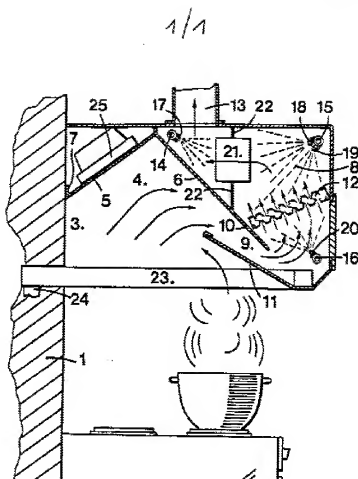
**US 3616744 (Jensen)** shows and discloses (see detailed discussion herein above) the invention substantially as set forth in the claims with possible exception to:

- wherein the bottom plate (42) is arranged so as to:
  - extend forwardly from one of the front wall and the rear wall;
  - extend beyond the baffle (35);
  - has an upwardly directed projection extending between the baffle and the one of the front wall and the rear wall; and
    - wherein the projection extends upwardly to a height at least as high as the mounting of the first filter to the baffle; and
- wherein the spray outlet is mounted on the plate.

**EP 0 029 807** from applicant's same self-cleaning kitchen exhaust hood system field of endeavor, arranging an exhaust hood bottom plate (generally 11 to extend from a front wall and to have an upwardly directed projection (11) extending between a baffle (6) and a rear wall, and wherein the projection (11) extends upwardly to a height at least as high as the mounting of an inclined filter (12).

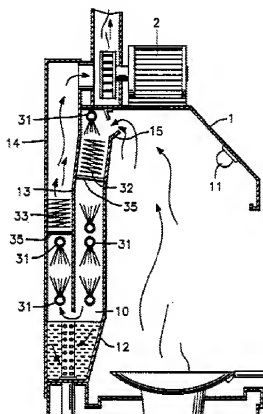


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US 5359990 (Hsu) teaches, from applicant's same self-cleaning kitchen exhaust hood system field of endeavor, arranging an exhaust hood bottom plate (generally at 12) to extend forwardly from a rear wall (14) and beyond a baffle (13). The bottom plate has an upwardly directed projection (generally 15) extending between the baffle (13) and a front wall (generally 1), and wherein the projection extends upwardly to a height at least as high as the mounting of a first filter (32) to the baffle.

FIG. 2



US 3805685 (Carns) teaches (figure 4) from applicant's same self-cleaning kitchen exhaust hood system field of endeavor, arranging an exhaust hood bottom plate (80) to extend from a rear wall and to have an upwardly directed projection (82) extending between a baffle (86) and a front wall (28), and wherein the projection (82) extends upwardly to a height at least as high as the mounting of an inclined filter (84). US 3805685 (Carns) uses the bottom wall to mount a sprayer (90).

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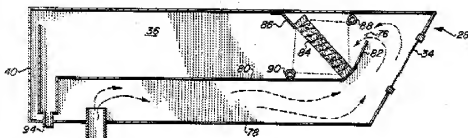


FIG. 4

In regard to **claim 7**, for the purpose of providing a suitable alternative hood construction and for aiding in isolating the water spray treatment zone from the any cooking surface, it would have been obvious to a person having ordinary skill in the art to modify the bottom plate of **US003616744 (Jensen)** to extend forwardly from one of the front wall and the rear wall and beyond the baffle, in view of the teaching of **EP 0 029 807, US 5359990 (Hsu)** or **US 3805685 (Carns)**.

In regard to **claim 8**, for the purpose of providing a suitable alternative hood construction and for aiding in isolating the water spray treatment zone from the any cooking surface, it would have been obvious to a person having ordinary skill in the art to modify the bottom plate of **US003616744 (Jensen)** such that the plate has an upwardly directed projection extending between the baffle and the one of the front wall and the rear wall, in view of the teaching of **EP 0 029 807** or **US 5359990 (Hsu)**.

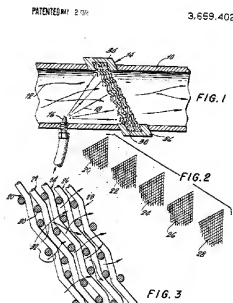
In regard to **claim 9**, for the purpose of providing a suitable alternative hood construction and for aiding in isolating the water spray treatment zone from the any cooking surface, it would have been obvious to a person having ordinary skill in the art to modify the bottom plate of **US003616744 (Jensen)** such that the projection extends upwardly to a height at least as high as the mounting of the first filter to the baffle, in view of the teachings of **EP 0 029 807, US 5359990 (Hsu)** or **US 3805685 (Carns)**.

In regard to **claim 10**, for the purpose of providing a suitable alternative hood construction and suitable support means for a spray nozzle, it would have been obvious to a person having ordinary skill in the art to modify the bottom plate of **US003616744 (Jensen)** such that a spray outlet is mounted on the plate, in view of the teaching of **US 3805685 (Carns)**.

### Conclusion

See the attached USPTO for, 892 for prior art made of record and not relied upon which is considered pertinent to applicant's disclosure.

**US 3659402**



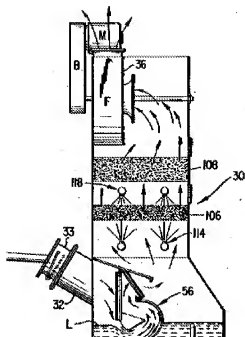
(18) In the present invention, a screen network comprising several tightly bound screens which in one embodiment may decrease in mesh sizes in the direction of movement of the gases to be cleaned. Water is directed onto the screens from a position in advance of the screen network so that the water is sprayed on and between the screen surfaces substantially filling the entire network as a continuous sheet with no voids. As the dirty gases impinge upon the screen network, the dirty gases are thoroughly mixed with the water in the countless paths thus formed. All contaminant particles become completely wetted and the water carrying the trapped pollutants may then be disposed of while the clean air continues through the screen network and out of the apparatus. The larger mesh screens in the network aid in eliminating large soot particles, so that by the time the gas reaches the finer mesh screens, their smaller openings cannot be clogged. Furthermore, the flow of the water from a location in advance of

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the screen network causes the water and gases to enter the screen network together and thus mix better while preventing clogging of the larger mesh screens as well.

(33) Scrubber pad 106 extends across the entire cross-sectional flow area of upper section 46 and is formed by upper and lower perforated polypropylene support grates 110 and 112, and an intermediate filter bed 113 of micro reticulated polyester fibrous pellets packed between the grates. The pellets preferably are of the type known as E-PACK and are sold by the Beco Engineering Co.

US 3885929



(34) A lower fresh water spray assembly 114 (FIGS. 8 and 9) is mounted in section 46 beneath pad 106 and includes suitable piping and a plurality of atomizing nozzles 116 which direct a continuous pressurized spray of fresh water upwardly against the bottom of pad 106.

(35) Similarly, an upper fresh water spray assembly 118 (FIGS. 10 and 11) is mounted in section 46 above pad 106 and includes suitable piping and a plurality of atomizing nozzles 120 which direct a continuous pressurized spray of water downwardly against the top of pad 106.

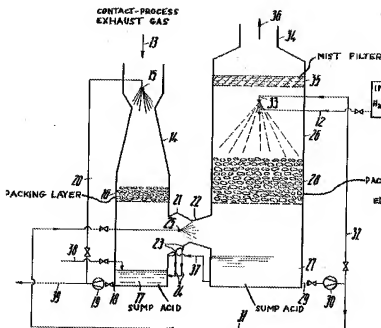
(36) As a result of spray assemblies 114 and 118, the pellets in pad 106 are highly wetted and the pad acts as a final transfer or separation stage for any contaminants remaining in the air. The water from assemblies 114 and 118 continuously washes pad 106, keeping it clean and effective as a final filtering and separating stage.

(37) Demister pad 108 removes the water from the air stream before it enters the housing of fan 36 and is exhausted to the atmosphere. Similar to scrubber pad 106, demister pad 108 is formed by upper and lower perforated polypropylene support grates 122 and 124, and an intermediate

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filter bed 126 of micro reticulated polyester fibrous pellets which collect the water as the air passes therethrough.

US 3944401:



(8) The gas outlet 34 is preceded by a wire mesh filter 35, in which residual acid is separated from the gas and drips onto the packing layer 28. The purified gas 36 is discharged into the atmosphere. Scrubbing acid from the sump 27 is transferred over the overflow 37 into the sump 17. The scrubbing acid flows over at a rate which corresponds to the rate at which electrolyte acid containing active oxygen is supplied to the tower plus the rate at which sulfuric acid is produced by oxidation in the tower 26 and the venturi tube 22. Water is supplied through conduit 38 into the sump 17 of the venturi tube 14. The rate is controlled so that a steady-state concentration of sulfuric acid in the sump 17 remains constant. Scrubbing acid which contains the oxidation product is withdrawn through conduit 39. The rate is controlled so that the level in the sump 17 remains constant. The withdrawn acid is supplied to the final absorber of the contact process plant where the residual active oxygen is utilized for oxidation.

### THIS ACTION IS MADE FINAL.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

#### **USPTO CUSTOMER CONTACT INFORMATION**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carl D. Price whose telephone number is (571) 272-4880. The examiner can normally be reached on Monday through Friday between 9:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven B. McAllister can be reached on (571) 272-6785. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Carl D. Price/

Primary Examiner, Art Unit 3749